

High carbohydrate diet implicated in pancreatic cancer

Deborah Josefsen *Nebraska*

A diet high in carbohydrates may increase the risk of pancreatic cancer in sedentary and overweight women, some new US research suggests. The study is the first to implicate a modifiable risk factor other than smoking in the development of pancreatic cancer (*Journal of the National Cancer Institute* 2002;94:1293-300).

Led by Dr Dominique Michaud of the US National Cancer Institute, and Charles Fuchs of the Brigham and Women's Hospital and the Dana-Farber Cancer Institute in Boston, the researchers set out to determine if foods that raise glucose levels after eating were linked to the development of pancreatic cancer.

They identified 180 cases of pancreatic cancer from among 88 802 women who were monitored for 18 years as part of the Nurses Health Study. This is a longitudinal health characteristics survey that started in 1976 with a cohort of 121 700 registered nurses aged 30-55. Only ductal adenocarcinomas were studied.

The researchers estimated glycaemic load and glycaemic index from the results reported on a detailed food frequency questionnaire by the study participants. The glycaemic index measures how much a particular food raises glucose compared with a reference food. The glycaemic load is calculated by multiplying glycaemic

index by the carbohydrate content of the food.

The average dietary glycaemic load was calculated for each participant, and non-dietary factors were assessed, including smoking, amount and type of exercise, and body mass index. Participants were also asked whether they had a history of diabetes and whether they had had a cholecystectomy.

The associations of glycaemic load and fructose intakes with risk of pancreatic cancer were most apparent among women with raised body mass index (≥ 25). Women who were overweight and sedentary and had a high glycaemic load and high fructose intake were at greater risk of pancreatic cancer, with a relative risk of 2.67 (95% confidence interval 1.02 to 6.99).

Women of normal weight and who were physically active but had high glycaemic loads and high fructose intakes were

also at greater risk (53% and 57% increase respectively) than those with low glycaemic loads and low fructose intakes. But these increases were considered insignificant (relative risk 1.53 (0.96 to 2.45) for high glycaemic loads and 1.57 (0.95 to 2.57) for high fructose intake).

The researchers speculate that impaired glucose tolerance may be to blame and that insulin may act as a growth factor for pancreatic cancer.

The study was conducted only in women, but Dr Fuchs said there was no reason to believe the results would not also apply to men. The researchers are now looking to see if there might be other modifiable dietary or behavioural risk factors, apart from smoking, for the development of the disease.

Over 30 000 Americans are diagnosed with pancreatic cancer every year. The disease has a poor prognosis, with only 4% of patients surviving five years. □

Organ transplants and blood transfusions may transmit West Nile virus

Fred Charlatan *Florida*

Four US recipients of organs from one donor have become infected with West Nile virus.

Three of the transplant recipients, resident in Florida and Georgia, developed encephalitis. One has died, and the other two are recovering in hospital.

The fourth, a Florida woman aged 71, underwent a liver transplantation at a Jacksonville hospital then developed mild symptoms of viral infection without encephalitis. She tested positive for the virus at the Florida Department of Health laboratory and is now recovering at home.

The donor, who died in Georgia on 1 August, was injured in a car crash and had several blood transfusions before she died. She was not known to have been ill before the crash, and a sample of her blood taken before she had any transfusions showed no evidence of West Nile virus.

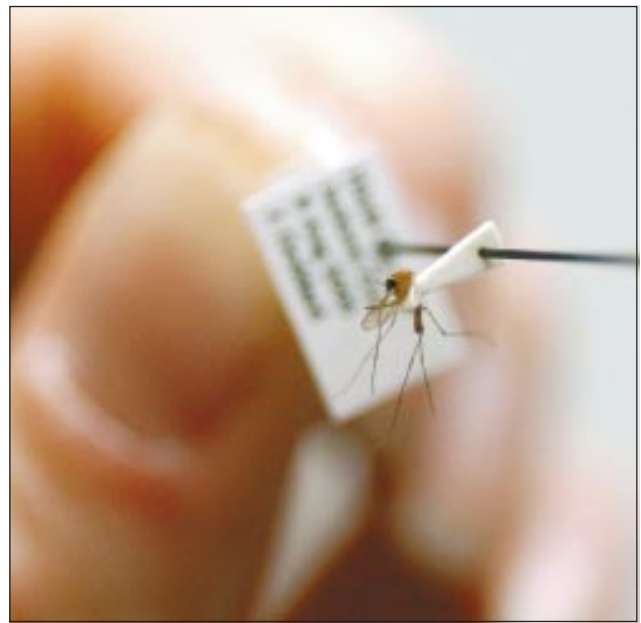
Dr Julie Geberding, director of the Centers for Disease Control and Prevention (CDC) in

Atlanta said on 30 August that "transmission of the West Nile virus through blood and organs is biologically plausible."

The CDC does not know whether the source of infection was mosquito bites or blood transfusions and is conducting further tests. It is also investigating a case diagnosed in a Mississippi resident nearly four weeks after the patient underwent a surgical procedure and received several units of blood.

The patient reported having been bitten by mosquitoes on numerous occasions before being admitted to hospital. Donors of blood given to this patient are being contacted so they can be tested for the virus. Similarly, other recipients of blood components from these donors will also be contacted and tested.

The West Nile virus has been spreading widely in the United States (31 August, p 460) since it was first reported in 1999 (*BMJ* 1999;319:941). To date the CDC has reported 854 cases in people



A Mississippi department of health employee holds one of the *Culex* mosquito species which has been identified as the primary carrier of West Nile virus in southern states

from 28 states, the District of Columbia, and New York city. Forty three people have died.

Dr Lyle Petersen, deputy director of the Division of Vector-borne Infectious Diseases at the CDC, said at a press conference on 5 September: "There is a massive increase in West Nile virus activity this year compared

to previous years, over a wider geographic area ... It is not simply due to a reporting artefact."

But he added: "The medical need of getting blood or the medical benefit of getting blood or organs far outweighs any potential risk of getting [West Nile virus] transmission from blood or organs." □